of lunar-diurnal variation in the higher latitudes of the two hemispheres. This conclusion, however evident at the time my note was written (1861), appeared opposed to the fact, since the law of lunar-diurnal variation at Toronto, according to General Sabine's discussion, was an inversal of that at Prague and Makerstoun, all three places in the same hemisphere; this I pointed out at the time (Proc. Roy. Soc. vol. x. p. 475). This statement seems to have caused a re-examination of the Toronto discussion, as General Sabine afterwards discovered that west had been substituted for east in his original memoir.

It followed from the similarity of the laws for the sun and moon discovered by me, and, *this correction made*, from the observations in the two hemispheres, that the mean law for a north latitude should be the inverse of that for a south latitude; or that a maximum of easterly declination in one hemisphere should be simultaneous, or nearly so, with a minimum in the other.

My chief object now is to draw attention to the fact (published in 1861) of the similarity of the changes of the laws of solar- and lunar-diurnal variations of the magnetic needle, with the sun's change of declination, as this fact appears to have escaped the notice of those men of science who since then have been engaged in proving independently the conclusions which follow from the note now referred to.

Mr. Neumayer remarks "that in some cases the lunar-diurnal variation manifests itself in a very striking manner during the winter months." This fact I had already remarked in the discussion of the Makerstoun observations for 1844 and 1845; but I have shown in a paper forwarded lately to the Royal Society of Edinburgh that the effect of the lunar action is sometimes *greater* than that of the solar action; and this is made evident from the lunar-diurnal variations for *single* days, as well as in the means deduced from a single lunation (Dec. 1858 to Jan. 1859) for each of the four positions of the moon already referred to.

XI. "An Account of Observations on the great Nebula in Orion, made at Birr Castle, with the 3-feet and 6-feet Telescopes, between 1848 and 1867." By Lord Oxmantown. Communicated by the Earl of Rosse, K.P., &c. Received June 17.

(Abstract.)

In this paper an account is given of the observations which have been made with the 3-feet and 6-feet telescopes on the great Nebula in Orion during the last eighteen years. The observations are accompanied by an elaborate drawing.

In the year 1852, Mr. Bindon Stoney made a drawing of the Huy-

genian region; it was repeatedly compared with the nebula by several persons, and we believe therefore that it was quite accurate. It is not now an exact representation of the nebula as it exists, consequently there seems to be strong evidence of change.

The observations were continued by Mr. Hunter from 1860 to 1864, and by me to the present time. A drawing was made by Mr. Hunter while he was assistant, and it has been verified by me in almost all its details, and extended considerably. In one place, where there is a disagreement between Mr. Hunter's drawing and mine, Mr. Hunter had previously been under the impression that some change was going on.

The nebula, when nearly on the meridian, was examined with the 6-feet instrument and with the 3-feet instrument, before and after that time. The appearance of the nebula differs from night to night, as the faint details come out more or less perfectly in the different states of the atmosphere; but the drawing represents it as seen on the best nights.

The present drawing contains many new stars, some laid down by the micrometer, and others by eye estimation. The nebula has been traced to a distance of fully 40′ North, and about the same distance South of the trapezium, on the following side to a distance of about 30′, and to a much greater distance on the preceding side.

As to resolvability, the brighter parts contain a great number of minute stars, generally of a reddish colour. With the spectroscope three bright lines were seen, but there was no certain evidence of a continuous spectrum. The results arrived at by means of the spectroscope do not, however, appear to be at variance with our observations on resolvability, as even if the whole nebula were to consist of minute stars, the continuous spectrum produced by them would still be extremely faint.

XII. "On the apparent relation of the Nerves to the Muscular Structures in the Aquatic Larva of *Tipula crystallina* of De Geer." By Richard L. Maddox, M.D. Communicated by Dr. Sharpey. Received June 18, 1867.

(Abstract.)

To avoid as much as possible errors that might be attributable to a faulty mode of examination, the figures and photographs have all been made from the larvæ alive, and in their natural medium, except two instances in the drawings and one in the photographs. After alluding to the effects of various reagents which were generally found useless in "differentiating" the fine nervous structures, and the ordinary mode of branching in the nerves from the ganglionic chain, two particular methods of termination are selected as illustrative of the relation between the muscular and nervous tissues. One, termed the "flabelliform,"